

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel claims 40, 43, 46, 51, 59, 60, 62, 67, 71, 76, and 77; and amend claims 47-50, 52-58, 61, 63-66, 68-70, 72-75, and 78-79 as follows:

Listing of Claims:

1-46. (Cancelled)

47. (Amended) ~~The method of claim 40 wherein the polishing pad further comprises:~~ A method of endpointing mechanical or chemical-mechanical planarization processing of microelectronic-device substrate assemblies, comprising:

initially passing a light beam from an illumination site in a table through a first optically transmissive view site located at a first area within a first elongated slot in a planarizing medium disposed on the polishing pad to at least periodically impinge a first substrate assembly with the light beam and optically sense a surface condition of the first substrate assembly;

advancing the polishing pad relative to the table and the illumination site after planarizing the first substrate assembly; and

subsequently passing a light beam from the illumination site in the table through a second optically transmissive view site in the polishing pad to at least periodically impinge a second substrate assembly with the light beam and optically sense a surface condition of the second substrate assembly the second view site being located a second area of the elongated slot spaced apart from the first area;

wherein the polishing pad comprises:

an optically transmissive backing sheet having a top surface and [[a]] ~~an~~ under surface[.], with the planarizing medium being disposed on the top surface;

a backing pad attached to the under surface of the backing sheet; and

~~wherein~~ the first elongated slot in the ~~planarizing-medium~~ polishing pad is alignable with the illumination site ~~on~~ in the table and at least one orifice in the backing pad is at least partially aligned with the ~~opening in the planarizing-medium~~ first elongated slot, thereby forming an optical pass through system in the polishing pad.

48. (Amended) The method of claim 40 ~~47~~ wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface,  
the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

the optical pass-through system further comprises a plurality of openings through the backing pad and arranged in a line aligned with the first elongated slot. ~~through the planarizing medium.~~

49. (Amended) The method of claim 40 ~~47~~ wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface,  
the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

the optical pass-through system further comprises a second elongated slot through the backing pad and aligned with the first elongated slot ~~through the planarizing medium.~~

50. (Amended) The method of claim 40 ~~47~~ wherein ~~the polishing pad further comprises~~

~~an optically transmissive backing sheet having a top surface, an under surface,  
and has a flat-topped ridge extending in the direction generally parallel to the pad travel path and alignable with the illumination site; and~~

~~a backing pad attached to the under surface of the backing sheet;~~

wherein the planarizing medium comprises a first section of abrasive material disposed on the top surface of the backing sheet on one side of the ridge and a second section of abrasive material disposed on the top surface of the backing sheet on the other side of the ridge; and

wherein the first elongated slot extends through the planarizing medium between the first and second sections of abrasive material, the ridge being positioned in the first elongated

slot, and the optical pass-through system further comprises a second elongated slot through the backing pad and aligned with the first elongated slot through the planarizing medium.

51. (Cancelled)

52. (Amended) ~~The method of claim 40 wherein the polishing pad further comprises,~~ A method of endpointing mechanical or chemical-mechanical planarization processing of microelectronic-device substrate assemblies, comprising:

initially passing a light beam from an illumination site in a table through a first optically transmissive view site located at first area within a first elongated slot in a planarizing medium disposed on a polishing pad, to at least periodically impinge a first substrate assembly with the light beam and optically sense a surface condition of the first substrate assembly;

advancing the polishing pad relative to the table and the illumination site after planarizing the first substrate assembly; and

subsequently passing a light beam from the illumination site in the table through a second optically transmissive view site in the polishing pad to at least periodically impinge a second substrate assembly with the light beam and optically sense a surface condition of the second substrate assembly the second view site being located a second area of the elongated slot spaced apart from the first area;

wherein the polishing pad comprises:

a backing pad having a top surface and an under surface, the planarizing medium being disposed on the top surface of the backing pad, wherein the polishing pad has an optical pass-through system ~~further comprises~~ comprising a second elongated slot through the backing pad and aligned with the first elongated slot ~~through the planarizing medium~~.

53. (Amended) ~~The method of claim 40~~ 47 ~~wherein the polishing pad further comprises a backing pad having a top surface and an under surface, the planarizing medium being disposed on the top surface of the backing pad, and the optical pass-through system further comprises a plurality of holes in which each hole of the plurality of holes is aligned~~ alignable with the first elongated slot.

54. (Amended) The method of claim 40 ~~47~~ wherein ~~the polishing pad further comprises an optically transmissive backing sheet having a top surface and an under surface, and wherein a planarizing medium is an abrasive layer having a resin and abrasive particles distributed in the resin the planarizing medium being disposed on the top surface of the backing sheet.~~

55. (Amended) ~~The method of claim 43 wherein the polishing pad further comprises:~~ A method for planarizing microelectronic-device substrate assemblies, comprising:

removing material from a first substrate assembly by pressing the first substrate assembly against a planarizing surface of a polishing pad and moving the first substrate assembly with respect to the polishing pad;

initially passing a light beam from an illumination site in the table through an optically transmissive view site comprised of a first elongated slot in a planarizing medium disposed on the polishing pad to at least periodically impinge the first substrate assembly with the light beam and optically sense a surface condition of the first substrate assembly until the sensed surface condition indicates that the first substrate assembly has reached a desired endpoint;

advancing the polishing pad relative to the table and the illumination site after planarizing the first substrate assembly;

removing material from a second substrate assembly by pressing the second substrate assembly against the planarizing surface of the polishing pad and moving the second substrate assembly with respect to the polishing pad; and

subsequently passing a light beam from the illumination site in the table through another optically transmissive view site in the polishing pad that is located at a second area of the elongated slot spaced apart from the first area to at least periodically impinge the second substrate assembly with the light beam and optically sense a surface condition of the second substrate assembly until the sensed surface condition indicates that the second substrate assembly has reached a desired endpoint;

wherein the polishing pad comprises:

an optically transmissive backing sheet having a top surface and ~~[[a]]~~ an under surface, the planarizing medium being disposed on the top surface;

a backing pad attached to the under surface of the backing sheet; and

wherein the first elongated slot in the ~~planarizing medium~~ polishing pad is alignable with the illumination site ~~on~~ in the table and at least one orifice in the backing pad is at least partially aligned with the ~~opening in the planarizing medium~~ first elongated slot thereby providing an optical pass through system in the polishing pad

56. (Amended) The method of claim 43 55 wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface, the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

~~the optical pass-through system further comprises a plurality of openings through the backing pad and arranged in a line aligned with the first elongated slot through the planarizing medium.~~

57. (Amended) The method of claim 43 55 wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface, the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

~~the optical pass-through system further comprises a second elongated slot through the backing pad and aligned with the first elongated slot through the planarizing medium .~~

58. (Amended) The method of claim 43 55 wherein ~~the polishing pad further comprises~~

~~an optically transmissive backing sheet having a top surface, an under surface, and a flat topped ridge extending in the direction generally parallel to the pad travel path and alignable with the illumination site;~~

~~a backing pad attached to the under surface of the backing sheet;~~

~~wherein the planarizing medium comprises a first section of abrasive material disposed on the top surface of the backing sheet on one side of the ridge and a second section of~~

abrasive material disposed on the top surface of the backing sheet on the other side of the ridge;  
and

wherein the first elongated slot extends through the planarizing medium between the first and second sections of abrasive material, the ridge being positioned in the first elongated slot, and the optical pass-through system further comprises a second elongated slot through the backing pad and aligned with the first elongated slot ~~through the planarizing medium~~.

59-60. (Cancelled)

61. (Amended) The method of claim 43 55 wherein ~~the polishing pad further comprises a backing pad having a top surface and an under surface, the with a planarizing medium being disposed on the top surface of the backing pad, and the optical pass-through system further~~ comprises a plurality of holes in which each hole of the plurality of holes is aligned with the first elongated slot.

62. (Cancelled)

63. (Amended) ~~The method of claim 46 wherein the polishing pad further comprises:~~ A method of endpointing mechanical or chemical-mechanical planarization processing of microelectronic-device substrate assemblies, comprising:

initially passing a light beam from an illumination site in a table through a first optically transmissive view site in a polishing pad and planarizing medium disposed thereon comprised of a first plurality of openings arranged in line to at least periodically impinge a first substrate assembly with the light beam and optically sense a surface condition of the first substrate assembly, the first view site comprising a first discrete opening among the plurality of openings;

advancing the polishing pad relative to the table and the illumination site after planarizing the first substrate assembly; and

subsequently passing a light beam from the illumination site in the table through a second optically transmissive view site in the polishing pad to at least periodically impinge a second substrate assembly with the light beam and optically sense a surface condition of the

second substrate assembly the second view site comprising a second discrete opening spaced apart from the first discrete opening; and

wherein the polishing pad comprises:

an optically transmissive backing sheet having a top surface and a under surface, the planarizing medium being disposed on the top surface;

a backing pad attached to the under surface of the backing sheet; and

wherein the first-elongated-slots plurality of openings in the planarizing medium polishing pad are alignable with the illumination site on in the table and at least one orifice in the backing pad is at least partially aligned with the opening in the planarizing medium at least one of the first plurality of openings thereby providing an optical pass through system in the polishing pad.

64. (Amended) The method of claim 46 63 wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface, the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

the optical pass-through system further comprises a plurality of openings through the backing pad and arranged in a line aligned with the ~~elongated slot through the planarizing medium~~ at least one of the first plurality of openings.

65. (Amended) The method of claim 46 63 wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface, the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

the optical pass-through system further comprises ~~a second~~ an elongated slot through the backing pad and aligned with the ~~first elongated slot through the planarizing medium~~ at least one of the first plurality of openings.

66. (Amended) The method of claim 46 63 wherein ~~the polishing pad further comprises~~

~~an~~ the optically transmissive backing sheet ~~having a top surface, an under surface, and comprises~~ a flat-topped ridge extending in the direction generally parallel to the pad travel path and alignable with the illumination site;

~~a backing pad attached to the under surface of the backing sheet;~~

wherein the planarizing medium comprises a first section of abrasive material disposed on the top surface of the backing sheet on one side of the ridge and a second section of abrasive material disposed on the top surface of the backing sheet on the other side of the ridge; and

wherein the ~~first elongated slot~~ first plurality of openings extends through the planarizing medium between the first and second sections of abrasive material, the ridge being positioned in at least one ~~the first elongated slot~~ first plurality of openings, and the optical pass-through system further comprises ~~a second~~ an elongated slot through the backing pad and aligned with the ~~first elongated slot~~ first plurality of openings through the planarizing medium.

67. (Cancelled)

68. (Amended) The method of claim 46 63 wherein ~~the polishing pad further comprises, a backing pad having a top surface and an under surface, the planarizing medium being disposed on the top surface of the backing pad, wherein~~ the optical pass-through system further comprises a second ~~elongated slot~~ plurality of openings through the backing pad aligned with at least one of the first slot plurality of openings through the planarizing medium.

69. (Amended) The method of claim 46 63 wherein ~~the polishing pad further comprises a backing pad having a top surface and an under surface, the with a planarizing medium being disposed on the top surface of the backing pad, and~~ the optical pass-through system further comprises a plurality of holes in which each hole of the plurality of holes is aligned with ~~the first elongated slot~~ at least one of the first plurality of opening.



70. (Amended) The method of claim 46 ~~63~~ wherein ~~the polishing pad further comprises an optically transmissive backing sheet having a top surface and an under surface, and wherein the planarizing medium is~~ has an abrasive layer having a resin and abrasive particles distributed in the resin, the planarizing medium being disposed on the top surface of the backing sheet.

71. (Cancelled)

72. (Amended) ~~The method of claim 71 wherein the polishing pad further comprises:~~ A method for planarizing microelectronic-device substrate assemblies, comprising:

removing material from a first substrate assembly by pressing the first substrate assembly against a planarizing surface of a polishing pad and moving the first substrate assembly with respect to the polishing pad;

initially passing a light beam from an illumination site in the table through an optically transmissive view site comprised of a first discrete opening among a plurality of openings arranged in line in the polishing pad with a planarizing medium disposed thereon to at least periodically impinge the first substrate assembly with the light beam and optically sense a surface condition of the first substrate assembly until the sensed surface condition indicates that the first substrate assembly has reached a desired endpoint;

advancing the polishing pad relative to the table and the illumination site after planarizing the first substrate assembly;

removing material from a second substrate assembly by pressing the second substrate assembly against the planarizing surface of the polishing pad and moving the second substrate assembly with respect to the polishing pad; and

subsequently passing a light beam from the illumination site in the table through another optically transmissive view site in the polishing pad comprising a second discrete opening spaced apart from the first discrete opening among the plurality of openings to at least periodically impinge the second substrate assembly with the light beam and optically sense a surface condition of the second substrate assembly until the sensed surface condition indicates that the second substrate assembly has reached a desired endpoint;

wherein the polishing pad comprises:

an optically transmissive backing sheet having a top surface and ~~[[a]]~~ an under surface, the planarizing medium being disposed on the top surface;

a backing pad attached to the under surface of the backing sheet; and

wherein the first ~~elongated slot~~ discrete opening is alignable with the illumination site on the table and at least one orifice in the backing pad is at least partially aligned with the first discrete opening thereby providing an optical pass through system in the polishing pad ~~in the planarizing medium.~~

73. (Amended) The method of claim ~~71~~ 72 wherein the polishing pad further comprises:

an optically transmissive backing sheet having a top surface and an under surface, the planarizing medium being disposed on the top surface;

a backing pad attached to the under surface of the backing sheet; and

the optical pass-through system ~~further~~ comprises a plurality of openings through the backing pad and arranged in a line aligned with the first discrete opening ~~elongated slot through the planarizing medium.~~

74. (Amended) The method of claim ~~71~~ 72 wherein ~~the polishing pad further comprises:~~

~~an optically transmissive backing sheet having a top surface and an under surface, the planarizing medium being disposed on the top surface;~~

~~a backing pad attached to the under surface of the backing sheet; and~~

the optical pass-through system further comprises ~~a second~~ an elongated slot through the backing pad and aligned with the first ~~elongated slot~~ discrete opening through the planarizing medium.

75. (Amended) The method of claim 71 wherein the ~~polishing pad further comprises~~

~~an optically transmissive backing sheet having a top surface, an under surface, and~~ has a flat-topped ridge extending in the direction generally parallel to the pad travel path and alignable with the illumination site;

~~a backing pad attached to the under surface of the backing sheet;~~

wherein the planarizing medium comprises a first section of abrasive material disposed on the top surface of the backing sheet on one side of the ridge and a second section of abrasive material disposed on the top surface of the backing sheet on the other side of the ridge; and

wherein the first ~~elongated slot~~ discrete opening extends through the planarizing medium between the first and second sections of abrasive material, the ridge being positioned in the first ~~elongated slot~~ discrete opening, and the optical pass-through system further comprises a ~~an second elongated slot~~ through the backing pad and aligned with the first discrete opening ~~elongated slot through the planarizing medium.~~

76-77. (Cancelled)

78. (Amended) The method of claim ~~71~~ 72 wherein the ~~polishing pad further comprises a backing pad having a top surface and an under surface, the planarizing medium being disposed on the top surface of the backing pad, and~~ the optical pass-through system further comprises a plurality of holes in which each hole of the plurality of holes is aligned with the first discrete opening ~~elongated slot.~~

79. (Amended) The method of claim ~~71~~ 72 wherein the ~~polishing pad further comprises an optically transmissive backing sheet having a top surface and an under surface, and~~ wherein the ~~with a~~ planarizing medium is an abrasive layer having a resin and abrasive particles distributed in the resin, the planarizing medium being disposed on the top surface of the backing sheet.